

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1-55. Cancelled.

56. (Currently Amended) A magnetic resonance imaging (MRI) system providing an MR image of an imaging region of an object, said system comprising,

an MT (magnetization transfer) pulse applying unit configured to non selectively in space apply an MT pulse to the object so as to cause an MT effect in the imaging region, the MT pulse consisting of a plurality of divided MT pulses applied sequentially in time, a flip angle of each divided MT pulse being 90 to 100 degrees, and a region to be ~~exited~~excited by the MT pulse spatially including the imaging region;

a ~~grading~~gradient spoiler pulse applying unit configured to apply a gradient spoiler pulse to the object after applying the MT pulse;

a scanning unit configured to scan the imaging region with a pulse sequence to acquire an MR signal from the imaging region after applying the gradient spoiler pulse;

and

an image producing unit configured to produce the MR image using the acquired MR signal.

57. (Currently Amended) The MRI system of claim 56, wherein each of the plurality of divided MT pulses applied by the MT pulse applying unit is ~~composed~~ comprises an RF pulse of which frequency is set to a value exciting magnetic spins residing in the imaging region.

58. (Currently Amended) The MRI system of claim 57, wherein each of the plurality of divided MT pulses applied by the MT pulse applying unit is shorter in duration than a ~~conventional~~ slice-selective MT pulse.

59. (Previously Presented) The MRI system of claim 56, wherein the gradient spoiler pulse applying unit is configured to apply to the object the gradient spoiler pulse in at least one of slice, readout and phase-encoding directions spatially set to the object, the slice, readout and phase-encoding directions being perpendicular to each other.

60-63. Cancelled

64. (Currently Amended) A magnetic resonance imaging method of providing an MR (magnetic resonance) image of an imaging region of an object, the method comprising the steps of:

applying non-selectively in space an MT (magnetization transfer) pulse to the object so as to cause an MT effect in the imaging region, the MT pulse consisting of a plurality of divided MT pulses applied sequentially in time, a flip angle of each divided

MT pulse being 90 to 100 degrees, and a region to be ~~exited~~ excited by the MT pulse spatially including the imaging region;

applying a gradient spoiler pulse to the object after applying the MT pulse;

scanning the imaging region with a pulse sequence to acquire an MR signal from the imaging region after applying the gradient spoiler pulse; and

producing the MR image using the acquired MR signal.

65. (Currently Amended) The magnetic resonance imaging method of claim 64, wherein each of the plurality of divided MT pulses ~~is composed of~~ comprises an RF pulse of which frequency is set to a value exciting magnetic spins residing in the imaging region.

66. (Currently amended) The magnetic resonance imaging method of claim 65, wherein each of the plurality of divided MT pulses is shorter in duration than a ~~conventional~~ slice-selective MT pulse.

67. (Previously Presented) The magnetic resonance imaging method of claim 66, wherein the gradient spoiler pulse is applied in at least one of slice, readout and phase-encoding directions spatially set to the object, the slice, readout and phase-encoding directions being perpendicular to each other.

68. (New) The MRI system of claim 58, wherein the duration of each divided MT pulse is as short as approximately 1300 μ sec.

69. (New) The magnetic resonance imaging method of claim 66, wherein the duration of each MT pulse divided is as short as approx. 1300 μ sec.

70. (New) A magnetic resonance imaging method comprising, in the following sequence:

applying at least one non-selective MT pulse to an object imaging region;
applying at least one gradient spoiler pulse to said object imaging region;
acquiring MR image data from said object imaging region; and
producing an image using said acquired MR image data.

71. (New) A method as in claim 70 wherein said at least one MT pulse utilizes an RF frequency which MR excites magnetic spins in said object imaging region.

72. (New) A method as in claim 70 wherein said at least one MT pulse comprises a plurality of divided MT pulses, each having a duration shorter than the duration of a slice selective MT pulse.

73. (New) A method as in claim 70 wherein said at least one MT pulse comprises a plurality of divided MT pulses, each having a duration no greater than approximately 1300 μ sec.

74. (New) A method as in claim 70 wherein said at least one gradient spoiler pulse is applied in at least one of mutually perpendicular (a) slice, (b) readout and (c) phase-encoding directions.